

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (cancelled).

2 (cancelled).

3 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 9, wherein

said driving spring section of said actuator spring is composed of a short plate spring and of a pair of side springs made from long plate springs, and

wherein a center spring is disposed on said center axis of said actuator spring while each of said side springs is disposed, with said center spring interposed between said side springs, in a direction being intersected almost at right angles to said center axis of said actuator spring, and

wherein said base plate is junctioned to said actuator spring, at least, at a root area of said center spring and said side springs.

4 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 10, wherein

said driving spring section of said actuator spring is composed of a short plate spring and of a pair of side springs made from long plate springs, and

wherein said center spring is disposed on said center axis of said actuator spring while each of said side springs is disposed, with said center spring interposed between said side springs, in a direction being intersected almost at right angles to said center axis of said actuator spring, and

wherein said base plate is junctioned to said actuator spring, at least, at a root area of said center spring and said side springs.

5 (cancelled).

6 (cancelled).

7 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 9, wherein

said driving spring section of said actuator spring is composed of said center spring made from one short plate spring and a pair of side springs made from long plate springs, and

wherein said center spring is connected to said magnetic head supporting section-and to said actuator spring on said center axis of said actuator spring at an end portion of said magnetic head supporting section being nearer to said holder arm while each of said side springs is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said side springs straddles each of said driving voids and in a manner such that each of said side springs intersects almost at right angles to each of said piezo—electric elements.

8 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 10, wherein

said driving spring section of said actuator spring is composed of said center spring made from one short plate spring and a pair of side springs made from long plate springs, and

wherein said center spring is connected to said magnetic head supporting section-and to said actuator spring on said center axis of said actuator spring at an end portion of said magnetic head supporting section being nearer to said holder arm while each of said side springs is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said side springs straddles each of said driving voids and in a manner such that each of said side springs intersects almost at right angles to each of said piezo-electric elements.

9 (previously presented). A two-stage actuator type magnetic head positioning mechanism comprising:

a plurality of fine actuator sections which minutely drives, by a pair of piezo-electric elements mounted in said fine actuator sections, a magnetic head supporting section adapted to support a slider on which a magnetic head is attached;

a plurality of holder arms to support each of said fine actuator sections;

an arm block formed by integrally unifying said plurality of holder arms; and

a voice coil motor to drive said arm block;

wherein said fine actuator section is composed of an actuator spring made from one thin steel plate and a base plate made from one thick steel plate, both of which overlap each other,

wherein a driving spring section being connected to said magnetic head supporting section is mounted on said actuator spring and, in a vicinity of said driving spring section, a pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements along a longitudinal axis is formed in a state being symmetrical right and left and parallel with respect to a longitudinal center axis of said actuator spring,

wherein both end portions of said pair of piezo-electric elements are connected to said magnetic head supporting section and to said actuator spring in a manner such that said end portions straddle each of said driving voids,

wherein said base plate is junctioned to one face of said actuator spring in a manner such that said base plate covers said pair of driving voids,

wherein said pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements is formed at both sides of a

mounting position of said magnetic head supporting section in said state being symmetrical right and left with respect to said center axis of said actuator spring, wherein

each of said pair of piezo-electric elements is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said piezo—electric elements straddles each of said driving voids along both sides of said mounting position of said magnetic head supporting section, and

said driving spring section is mounted between said actuator spring and said magnetic head supporting section, wherein

a part of said base plate on which said magnetic supporting section is laid is separated from a main portion of said base plate in a state in which the separated part of said base plate is nested in said main portion of said base plate and is junctioned to said magnetic head supporting section and a pair of second driving voids being laid on said pair of driving voids so that said pair of second driving voids and said pair of driving voids overlap each other are formed between said portion of said base plate separated to be nested in said main portion of said base plate and said main portion of said base plate and wherein both end portions of each of said pair of piezo-electric elements are connected to said magnetic head supporting section and to said actuator spring through said portion of said base plate separated to be nested in said main portion of said base plate and said main portion of said base plate in a manner that each of said piezo-electric elements straddles each of said second driving voids.

10 (previously presented). A two-stage actuator type magnetic head positioning mechanism comprising:

a plurality of fine actuator sections which minutely drives, by a pair of piezo-electric elements mounted in said fine actuator sections, a magnetic head supporting section adapted to support a slider on which a magnetic head is attached;

a plurality of holder arms to support each of said fine actuator sections;

an arm block formed by integrally unifying said plurality of holder arms; and

a voice coil motor to drive said arm block;

wherein said fine actuator section is composed of an actuator spring made from one thin steel plate and a base plate made from one thick steel plate, both of which overlap each other,

wherein a driving spring section being connected to said magnetic head supporting section is mounted on said actuator spring and,

in a vicinity of said driving spring section, a pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements along a longitudinal axis is formed in a state being symmetrical right and left and parallel with respect to a longitudinal center axis of said actuator spring,

wherein both end portions of said pair of piezo-electric elements are connected to said magnetic head supporting section and to said actuator spring in a manner such that said end portions straddle each of said driving voids,

wherein said base plate is junctioned to one face of said actuator spring in a manner such that said base plate covers said pair of driving voids,

wherein said base plate is opened at a place where said base plate and said magnetic head supporting section overlap each other and is junctioned to said actuator spring in a manner such that said base plate surrounds external edges of said driving spring section of said actuator spring,

wherein said pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements is formed at both sides of a mounting position of said magnetic head supporting section in said state being symmetrical right and left with respect to said center axis of said actuator spring,

wherein each of said pair of piezo-electric elements is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said piezo-electric elements straddles each of said driving voids along both sides of said mounting position of said magnetic head supporting section,

said driving spring section is mounted between said actuator spring and said magnetic head supporting section, and wherein a part of said base plate on which said magnetic supporting section is laid is separated from a main portion of said base plate in a state in which the separated part of said base plate is nested in said main portion of said base plate and is junctioned to said magnetic head supporting section and second driving voids being laid on said other driving voids so that said second driving voids and said other driving voids overlap each other are formed between said portion of said base plate separated to be nested in said main portion of said base plate and said main portion of said base plate and

wherein both end portions of each of said pair of piezo-electric elements are connected to said magnetic head supporting section and to said actuator spring through said portion of said base plate separated to be nested in said main portion of said base plate and said main portion of said base plate in a manner that each of said piezo-electric elements straddles each of said second driving voids.

11 (previously presented). A two-stage actuator type magnetic head positioning mechanism comprising:

a plurality of fine actuator sections which minutely drives, by a pair of piezo-electric elements mounted in said fine actuator sections, a magnetic head supporting section adapted to support a slider on which a magnetic head is attached;

a plurality of holder arms to support each of said fine actuator sections;

an arm block formed by integrally unifying said plurality of holder arms; and

a voice coil motor to drive said arm block;

wherein said fine actuator section is composed of an actuator spring made from one thin steel plate and a base plate made from one thick steel plate, both of which overlap each other,

wherein a driving spring section being connected to said magnetic head supporting section is mounted on said actuator spring and,

in a vicinity of said driving spring section, a pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements along a longitudinal axis is formed in a state being symmetrical right and left and parallel with respect to a longitudinal center axis of said actuator spring,

wherein both end portions of said pair of piezo-electric elements are connected to said magnetic head supporting section and to said actuator spring in a manner such that said end portions straddle each of said driving voids,

wherein said base plate is junctioned to one face of said actuator spring in a manner such that said base plate covers said pair of driving voids,

wherein said pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements is formed at both sides of a mounting position of said magnetic head supporting section in said state being symmetrical right and left with respect to said center axis of said actuator spring,

wherein each of said pair of piezo-electric elements is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said piezo—electric elements straddles each of said driving voids along both sides of said mounting position of said magnetic head supporting section, and said driving spring section is mounted between said actuator spring and said magnetic head supporting section, and

wherein said pair of driving voids are formed so as to be intersected in a slanting direction in a manner that a distance between said pair of driving voids is increased gradually toward said magnetic head from said holder arm side.

12 (previously presented). A two-stage actuator type magnetic head positioning mechanism comprising:

a plurality of fine actuator sections which minutely drives, by a pair of piezo-electric elements mounted in said fine actuator sections, a magnetic head supporting section adapted to support a slider on which a magnetic head is attached;

a plurality of holder arms to support each of said fine actuator sections;

an arm block formed by integrally unifying said plurality of holder arms; and

a voice coil motor to drive said arm block;

wherein said fine actuator section is composed of an actuator spring made from one thin steel plate and a base plate made from one thick steel plate, both of which overlap each other,

wherein a driving spring section being connected to said magnetic head supporting section is mounted on said actuator spring and,

in a vicinity of said driving spring section, a pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements

along a longitudinal axis is formed in a state being symmetrical right and left and parallel with respect to a longitudinal center axis of said actuator spring,

wherein both end portions of said pair of piezo-electric elements are connected to said magnetic head supporting section and to said actuator spring in a manner such that said end portions straddle each of said driving voids,

wherein said base plate is junctioned to one face of said actuator spring in a manner such that said base plate covers said pair of driving voids,

wherein said base plate is opened at a place where said base plate and said magnetic head supporting section overlap each other and is junctioned to said actuator spring in a manner such that said base plate surrounds external edges of said driving spring section of said actuator spring,

wherein said pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements is formed at both sides of a mounting position of said magnetic head supporting section in said state being symmetrical right and left with respect to said center axis of said actuator spring,

wherein each of said pair of piezo-electric elements is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said piezo—electric elements straddles each of said driving voids along both sides of said mounting position of said magnetic head supporting section, and

said driving spring section is mounted between said actuator spring and said magnetic head supporting section, and

wherein said pair of driving voids are formed so as to be intersected in a slanting direction in a manner that a distance between said pair of driving voids is increased gradually toward said magnetic head from said holder arm side.

13 (previously presented). A two-stage actuator type magnetic head positioning mechanism comprising:

a plurality of fine actuator sections which minutely drives, by a pair of piezo-electric elements mounted in said fine actuator sections, a magnetic head supporting section adapted to support a slider on which a magnetic head is attached;

a plurality of holder arms to support each of said fine actuator sections;

an arm block formed by integrally unifying said plurality of holder arms; and

a voice coil motor to drive said arm block;

wherein said fine actuator section is composed of an actuator spring made from one thin steel plate and a base plate made from one thick steel plate, both of which overlap each other,

wherein a driving spring section being connected to said magnetic head supporting section is mounted on said actuator spring and,

in a vicinity of said driving spring section, a pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements along a longitudinal axis is formed in a state being symmetrical right and left and parallel with respect to a longitudinal center axis of said actuator spring,

wherein both end portions of said pair of piezo-electric elements are connected to said magnetic head supporting section and to said actuator spring in a manner such that said end portions straddle each of said driving voids,

wherein said base plate is junctioned to one face of said actuator spring in a manner such that said base plate covers said pair of driving voids,

wherein said pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements is formed at both sides of a mounting position of said magnetic head supporting section in said state being symmetrical right and left with respect to said center axis of said actuator spring,

wherein each of said pair of piezo-electric elements is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said piezo-electric elements straddles each of said driving voids along both sides of said mounting position of said magnetic head supporting section, and

said driving spring section is mounted between said actuator spring and said magnetic head supporting section, and

wherein length of said actuator spring is set so as to end at a tip of said holder arm so that said actuator spring being junctioned to said base plate and said holder arm do not overlap each other when said base plate is connected to said holder arm.

14 (previously presented). A two-stage actuator type magnetic head positioning mechanism comprising:

a plurality of fine actuator sections which minutely drives, by a pair of piezo-electric elements mounted in said fine actuator sections, a magnetic head supporting section adapted to support a slider on which a magnetic head is attached;

a plurality of holder arms to support each of said fine actuator sections;

an arm block formed by integrally unifying said plurality of holder arms; and

a voice coil motor to drive said arm block;

wherein said fine actuator section is composed of an actuator spring made from one thin steel plate and a base plate made from one thick steel plate, both of which overlap each other,

wherein a driving spring section being connected to said magnetic head supporting section is mounted on said actuator spring and,

in a vicinity of said driving spring section, a pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements along a longitudinal axis is formed in a state being symmetrical right and left and parallel with respect to a longitudinal center axis of said actuator spring,

wherein both end portions of said pair of piezo-electric elements are connected to said magnetic head supporting section and to said actuator spring in a manner such that said end portions straddle each of said driving voids,

wherein said base plate is junctioned to one face of said actuator spring in a manner such that said base plate covers said pair of driving voids,

wherein said base plate is opened at a place where said base plate and said magnetic head supporting section overlap each other and is junctioned to said actuator spring in a manner such that said base plate surrounds external edges of said driving spring section of said actuator spring,

wherein said pair of driving voids to absorb vibration of said magnetic head supporting section and extension/shrinkage of said piezo-electric elements is formed at both sides of a mounting position of said magnetic head supporting section in said state being symmetrical right and left with respect to said center axis of said actuator spring, and wherein each of said pair of piezo-electric elements is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said piezo-electric elements straddles each of said

driving voids along both sides of said mounting position of said magnetic head supporting section, and

said driving spring section is mounted between said actuator spring and said magnetic head supporting section, and

wherein length of said actuator spring is set so as to end at a tip of said holder arm so that said actuator spring being junctioned to said base plate and said holder arm do not overlap each other when said base plate is connected to said holder arm.

15 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 9, wherein a boss section is formed on said base plate so that said base plate is connected to said holder arm.

16 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 10, wherein a boss section is formed on said base plate so that said base plate is connected to said holder arm.

17 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 11,

wherein said driving spring section of said actuator spring is composed of a short plate spring and of a pair of side springs made from long plate springs, wherein a center spring is disposed on said center axis of said actuator spring while each of said side springs is disposed, with said center spring interposed between said side springs, in a direction being intersected almost at right angles to said center axis of said actuator spring, and

wherein said base plate is junctioned to said actuator spring, at least, at a root area of said center spring and said side springs.

18 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 12, wherein

said driving spring section of said actuator spring is composed of a short plate spring and of a pair of side springs made from long plate springs,

wherein said center spring is disposed on said center axis of said actuator spring while each of said side springs is disposed, with said center spring interposed between said side springs, in a direction being intersected almost at right angles to said center axis of said actuator spring,

wherein said base plate is junctioned to said actuator spring, at least, at a root area of said center spring and said side springs.

19 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 13,

wherein said driving spring section of said actuator spring is composed of a short plate spring and of a pair of side springs made from long plate springs,

wherein a center spring is disposed on said center axis of said actuator spring while each of said side springs is disposed, with said center spring interposed between said side springs, in a direction being intersected almost at right angles to said center axis of said actuator spring, and

wherein said base plate is junctioned to said actuator spring, at least, at a root area of said center spring and said side springs.

20 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 14,

wherein said driving spring section of said actuator spring is composed of a short plate spring and of a pair of side springs made from long plate springs,

wherein said center spring is disposed on said center axis of said actuator spring while each of said side springs is disposed, with said center spring interposed between said side springs, in a direction being intersected almost at right angles to said center axis of said actuator spring, and

wherein said base plate is junctioned to said actuator spring, at least, at a root area of said center spring and said side springs.

21 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 11,

wherein said driving spring section of said actuator spring is composed of said center spring made from one short plate spring and a pair of side springs made from long plate springs, and

wherein said center spring is connected to said magnetic head supporting section-and to said actuator spring on said center axis of said actuator spring at an end portion of said magnetic head supporting section being nearer to said holder arm while each of said side springs is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said side springs straddles each of said driving voids and in a manner such that each of said side springs intersects almost at right angles to each of said piezo-electric elements.

22 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 12,

wherein said driving spring section of said actuator spring is composed of said center spring made from one short plate spring and a pair of side springs made from long plate springs, and

wherein said center spring is connected to said magnetic head supporting section and to said actuator spring on said center axis of said actuator spring at an end portion of said magnetic head supporting section being nearer to said holder arm while each of said side springs is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said side springs straddles each of said driving voids and in a manner such that each of said side springs intersects almost at right angles to each of said piezo-electric elements.

23 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 13,

wherein said driving spring section of said actuator spring is composed of said center spring made from one short plate spring and a pair of side springs made from long plate springs, and

wherein said center spring is connected to said magnetic head supporting section-and to said actuator spring on said center axis of said actuator spring at an end portion of said magnetic head supporting section being nearer to said holder arm while each of said side springs is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said side springs straddles each of said driving voids and in a manner such that each of said side springs intersects almost at right angles to each of said piezo-electric elements.

24 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 14,

wherein said driving spring section of said actuator spring is composed of said center spring made from one short plate spring and a pair of side springs made from long plate springs, and

wherein said center spring is connected to said magnetic head supporting section and to said actuator spring on said center axis of said actuator spring at an end portion of said magnetic head supporting section being nearer to said holder arm while each of said side springs is connected to said magnetic head supporting section and to said actuator spring in a manner such that each of said side springs straddles each of said driving voids and in a manner such that each of said side springs intersects almost at right angles to each of said piezo-electric elements.

25 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 11, wherein a boss section is formed on said base plate so that said base plate is connected to said holder arm.

26 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 12, wherein a boss section is formed on said base plate so that said base plate is connected to said holder arm.

27 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 13, wherein a boss section is formed on said base plate so that said base plate is connected to said holder arm.

28 (previously presented). The two-stage actuator type magnetic head positioning mechanism according to Claim 14, wherein a boss section is formed on said base plate so that said base plate is connected to said holder arm.

29 - 54 (cancelled).